

REQUEST FOR RECONSIDERATION AND EXAMINER INTERVIEW

Serial Number: 09/484,303

Filing Date: January 18, 2000

Title: **METHODS FOR MAKING INTEGRATED-CIRCUIT WIRING FROM COPPER, SILVER, GOLD, AND OTHER METALS**Page 2
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then necessary. Additionally, for the Examiner's convenience, a copy of the 1449 form originally filed as a part of the SIDS is attached. The signature and dateline is located at the bottom of each of its three pages.

Accordingly, applicant requests respectfully that the submitted references be considered and that an initialed copy of the 1449 Form be returned with the next official communication.

Preface

As a preface to the specific remarks regarding the rejections, applicant respectfully submits that the claim limitations underpinning Applicant's belief that the current claims distinguish from Mikagi find exemplary support at Figures 5 and 6 of the application. These Figures exemplify limitations regarding the location of portions of a diffusion barrier and the timing of their formation.

Specifically, Figure 5 is a cross-sectional view of the Figure 4 assembly after removal of mask layers 116 and 220 to define space 224 and exposes an underlying surface that confronts the substrate. And, Figure 6 is a cross-sectional view of the Figure 5 assembly after forming a diffusion-barrier 226 on conductive structures 218 and 222-- including on exposed underlying surfaces that confront the substrate.

Response to §102 Rejections

The Examiner rejected claims 5, 6, 43, 47, 54, 57, and 60-64 under 35 USC §102(e) as anticipated by Mikagi (U.S. Patent 6,153,507), specifically citing Figure 6a, element 107a; and Fig. 6c, element 108a (as see in Figs 7A-TF).

In response to the rejection of claims 5 and 6, applicant submits respectfully that Mikagi fails, at a minimum, to teach "forming a diffusion-barrier lining around the conductive structure after forming the conductive structure, with at least a portion of the diffusion-barrier lining contacting the surface of the conductive structure [that confronts the substrate.]" as claims 5 and 6 require.

In contrast to this requirement, Mikagi's alleged barrier element 108a, as shown in Figs 6A-6D and 7A-7D, does not contact the substrate-confronting surface of its conductor 107a. Indeed, in both these figures, Mikagi shows the substrate-confronting surface of conductor 107a

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(its bottom surface) in contact with alleged barrier element 106a, rather than barrier element 108a. Moreover, barrier element 106a is formed before formation of conductor 107a, not afterward as would be necessary for it (106a) to satisfy the requirements of claims 5 and 6.

Accordingly, applicant requests respectfully that the Examiner reconsider and withdraw the §102 rejection of claims 5 and 6.

Similarly, claims 43, 47, 50, 52, 54, and 57 also distinguish from Mikagi. For example, claim 43 specifies formation of at least a portion of a diffusion-barrier lining or a layer of tungsten silicon nitrogen on at least one exposed portion of a prior-formed conductive structure that confronts the integrated circuit substrate.

Specifically, claim 43 recites "forming a diffusion-barrier lining on exposed portions of the first conductive structure after forming the first conductive structure, with at least one of the exposed portions having a surface confronting the integrated circuit substrate." (Emphasis added.)

In contrast, Mikagi appears only to show that prior to formation of its barrier element 108a, its conductor 107a has only lateral exposed surfaces in Figure 6A-6D and top exposed surfaces in Figures 7A-7D. None of Mikagi's exposed conductor surfaces confront its substrate. Therefore, its barrier element 108a is not formed on any exposed conductor surfaces that confront the substrate.

Accordingly, applicant requests respectfully that the Examiner reconsider and withdraw the §102 rejection of claims 43, 47, 50, 52, 54, and 57 as well as claims 60-64.

Response to §103 Rejections

Additionally, the Examiner rejected the remaining dependent claims of the application under 35 USC §103(a) as obvious over Mikagi in view of one or more other references. In response, applicant submits respectfully that these rejections are all based on Mikagi, which fails to teach at least the location and sequencing features of each of the independent claims on which the current claims depend.

Accordingly, applicant requests respectfully that the Examiner reconsider and withdraw the §103 rejections based on Mikagi.

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Conclusion

In view of the remarks and highlighted shortcomings of the principle reference Mikagi, applicant requests respectfully that the Examiner reconsider the application. Additionally, applicant notes its desire to telephonically interview the Examiner regarding Mikagai as well as the potential for allowance of the application without resort to full expense and delay of the appellate process.

Respectfully submitted,

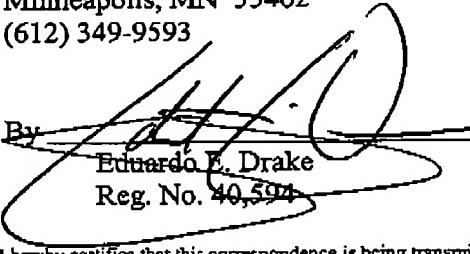
KIE Y. AHN ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9593

Date 7 Dec. 2004

By


Eduardo E. Drake
Reg. No. 40,504

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being transmitted via facsimile to 703-872-9306, addressed to: Attn: Examiner William D. Coleman, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 7 day of December, 2004.

KACIA LEE
NameKacia Lee
Signature

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